



**UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/333.049	06/15/99	HIRANO	H 0819-255

MM42/0113  
GERALD FERGUSON JR  
SIXBEY FRIEDMAN LEEDOM & FERGUSON P C  
8180 GREENSBORO DRIVE  
SUITE 800  
MCLEAN VA 22102

EXAMINER

PHAM, H

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 01/13/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trad marks**

# Office Action Summary

Application No.  
09/333,049

Applicant(s)  
Hirano et al.

Examiner  
Hoai Pham

Group Art Unit  
2814



☒ Responsive to communication(s) filed on Jun 15, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-10 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Objections*

1. Claims 2, 6, 8 and 9 are objected to because of the following informalities:

Claims 2 and 6 are recited the same limitation.

Claims 8 and 9 are recited the same limitation.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Prior Art (hereinafter APA) in view of Hanagasaki [U.S. Pat. 5,869,859].

APA discloses a ferroelectric memory device comprising:

a ferroelectric capacitor including a top electrode 58, a bottom electrode 56 and a ferroelectric film 57 interposed between the top and bottom electrodes, the top electrode having a rectangular planar pattern;

a memory cell transistor including first and second doped layer 53 and gate 54 the memory cell transistor controlling a voltage supplied to the top electrode of the ferroelectric capacitor;

an interlevel dielectric film 59 formed over the memory cell transistor and the ferroelectric capacitor; and

a first interconnection layer 60 formed on the interlevel dielectric film 59, wherein, in a planar layout of the ferroelectric memory device, the first interconnection layer 60 partially overlaps with the top electrode of the ferroelectric capacitor. (See Fig. 5)

The APA fails to disclose the first interconnection layer 60 does not cover at least one side of the rectangular top electrode. However, Hanagasaki discloses the first interconnection layer 11 does not cover at least one side of the rectangular top electrode as shown in Fig. 1 and as specified in col. 4, lines 60-65. Therefore, it would have been obvious to the skilled artisan at the time the invention was made to modify the teachings of Hanagasaki into the APA device to form the first interconnection layer that does not cover at least one side of the rectangular top electrode for improving manufacture yield and cost.

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With respect to claims 2-6, 8-9, referencing the reasons given above, when the first interconnection layer 11 does not cover at least one side of the rectangular top electrode then: the storage line intersects only one side of the top electrode in the planar layout; the line width of the third region is smaller than that of the first and second regions; the bit line does not overlap with the top electrode in the planar layout; and the second interconnection layer totally covers the top electrode of the ferroelectric capacitor in the planar layout.

With respect to claims 7 and 10, the APA discloses the interconnection layer is containing at least one of aluminum and copper.

### ***Conclusion***


*Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Technology Center 2800 fax center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989).*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai Pham whose telephone number is (703) 308-6173. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 308-2794. The fax number for the organization where this application or proceeding is assigned is (703) 308-7722 or -7724.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center receptionist at (703) 308-0956.

  
Donald L. Monin Jr.  
Primary Examiner

**HP**  
**Hoai Pham**  
**Art Unit 2814**  
**January 11, 2000**